

# working for clean rivers



## Amend Contract 30004334 with Otak, Inc, to revise floodplain maps for Crystal Springs Creek



ENVIRONMENTAL SERVICES  
CITY OF PORTLAND

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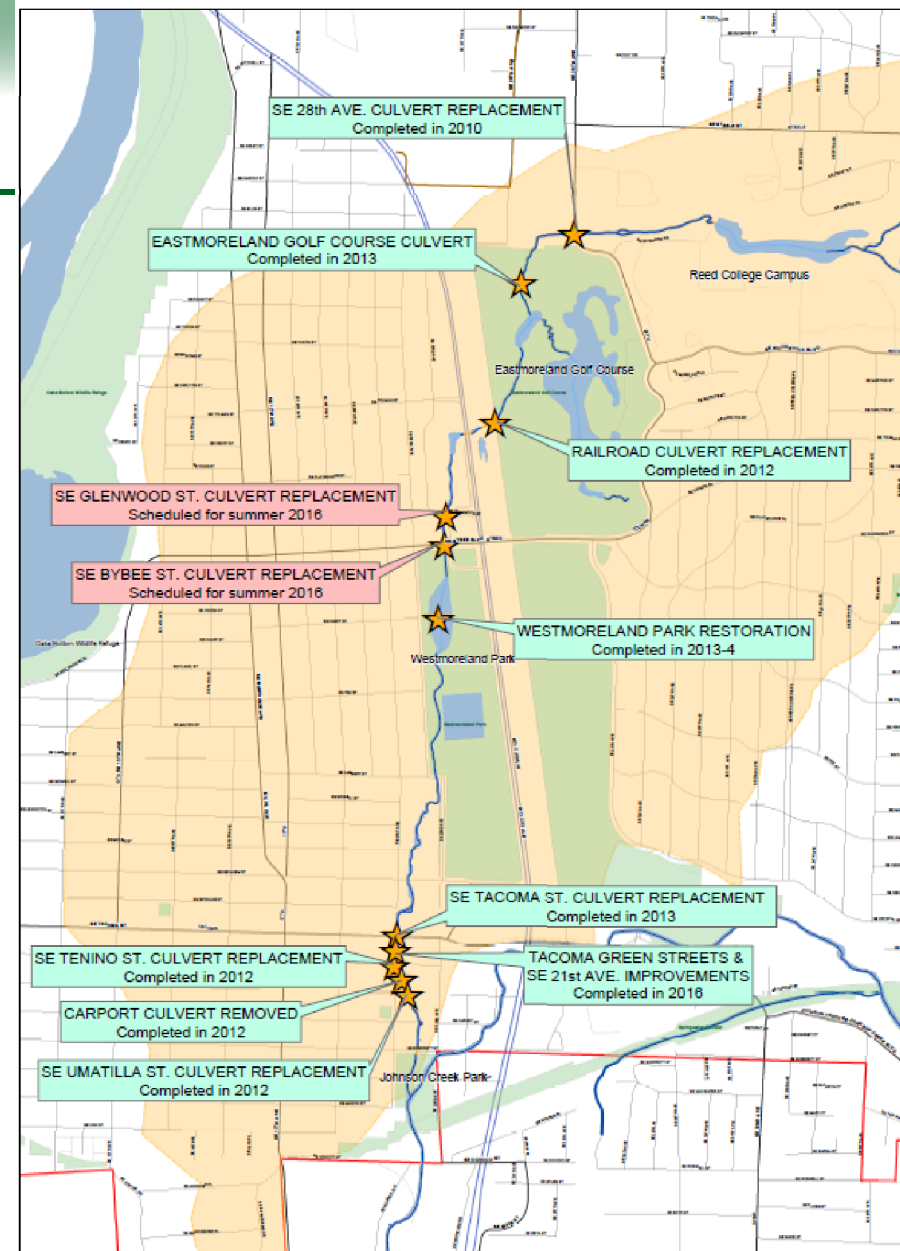
March 30, 2016

# Crystal Springs

💧 Initiated in 2008 via Grey to Green

💧 \$2M Seed money

💧 Target: 8 culverts





# Culvert Replacements

**BEFORE**  
Umatilla St



**AFTER**  
Umatilla St



**BEFORE**  
SE 28TH Ave



**AFTER**  
SE 28TH Ave





# Brannen Property Restoration



culvert

## BEFORE

Carport sat over stream supported by an impassable culvert

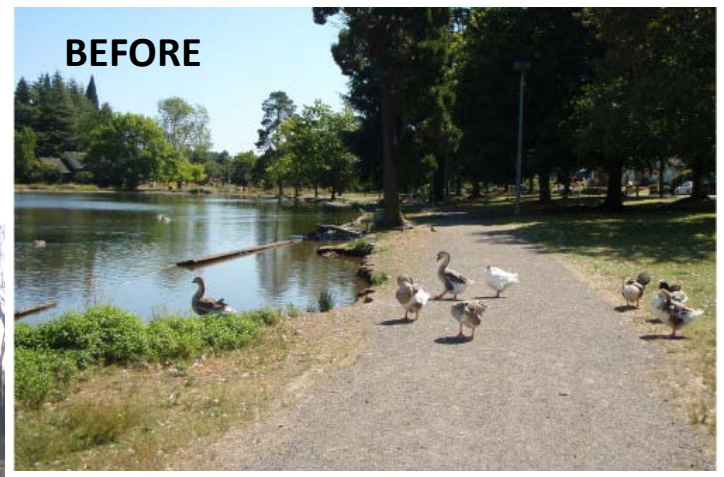
## AFTER

Culvert abandoned, site restored





# Westmoreland Park

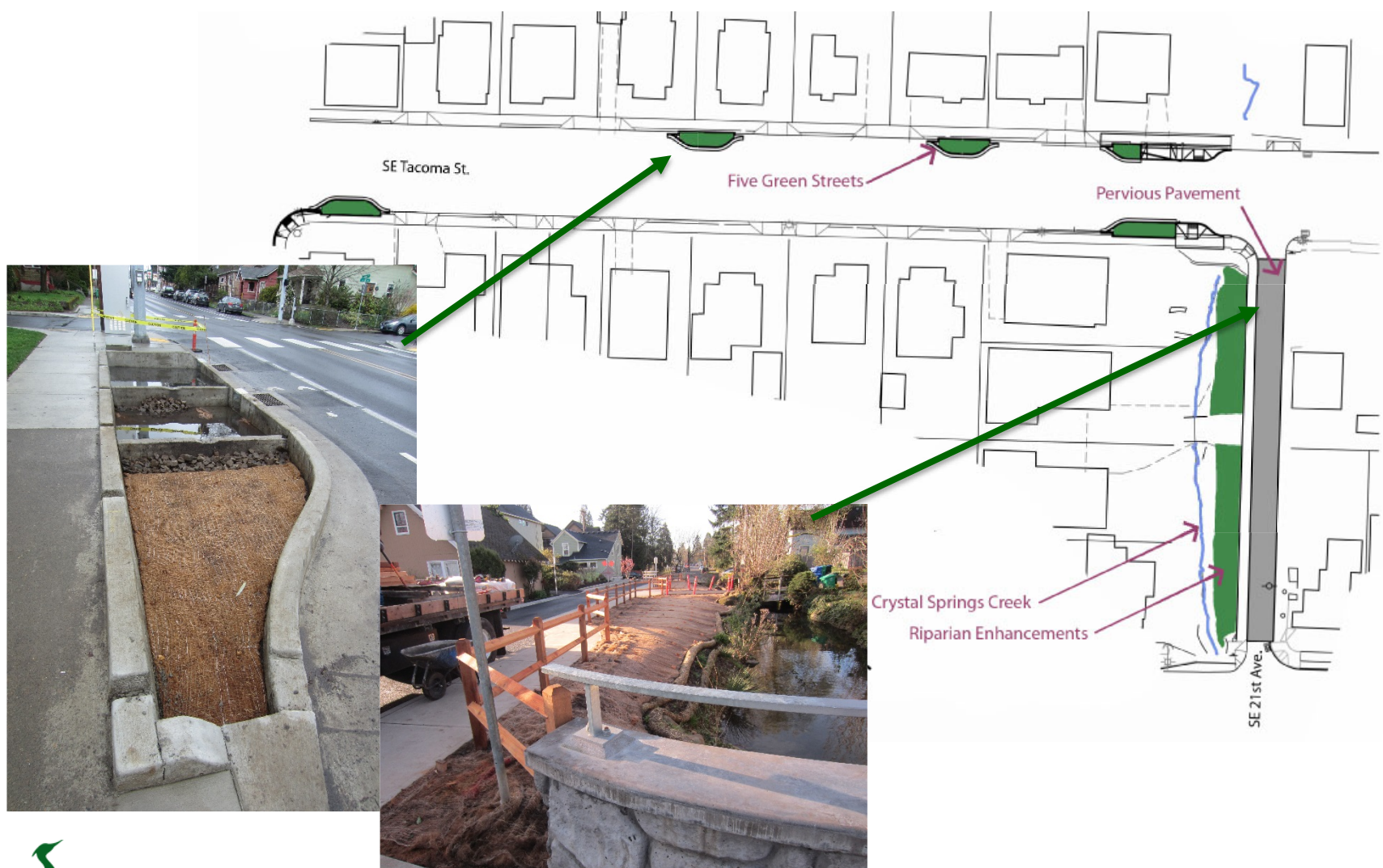


**AFTER**





# Built Green Infrastructure





# Partnerships

TriMet, Union Pacific Railroad, and  
the elusive “9th” culvert



187657

BEFORE

AFTER





# Two culverts to go – Summer 2016





# Flood reduction impacts

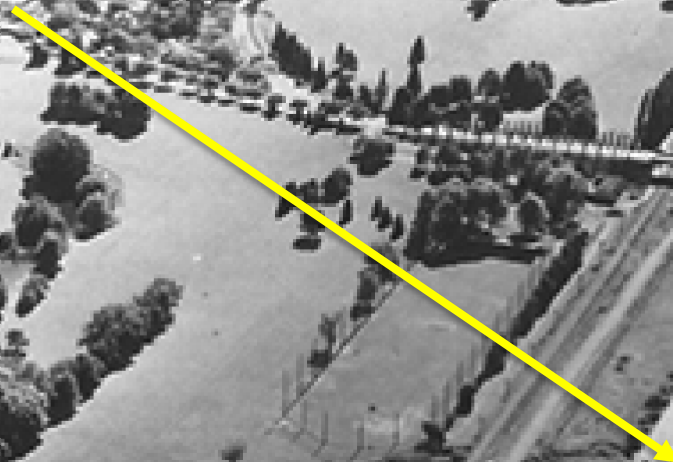
- We intended to reduce flood impacts
- Waited to finish all the projects prior to floodplain reassessment
- Hired USGS to redo the modeling
- Hired Otak to help with FEMA permits for Bybee/Glenwood





# The benefits of remapping

Highway 99 Bridge Replacement





# Stories from the December floods

